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EXAMINER	
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2626	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/684,508	POLANYI ET AL.	
	Examiner	Art Unit	
	Michael C. Colucci	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/20/06, 8/02/04, 10/15/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Please note: The art unit listed on applications sent on or after 8/20/2007 has changed from 2609 to 2626. Examiner assigned to case still remains.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 28 and 33 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. By referring to more than two claims without distinctly claiming limitations, claims 28 and 33 both convolute their limitations presented. Applicant should clearly state the limitations within a claim.

3. Claim 28 recites the limitation "the discourse parsing of claim 23" in line 31 of claim 28. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 24-27, 29-32, and 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Marcu et al U.S. PGPUB 20020046018 (herein after Marcu).

Re claim 24, "a method for discourse parsing comprising the steps of: determining a structural representation of discourse based on a theory of discourse analysis", Marcu discloses the present application relating to computational linguistics and more particularly to techniques for parsing a text to determine its underlying rhetorical, or discourse, structure, and to techniques for summarizing, or compressing, text (Marcu [0003]). Marcu also discloses rhetorical tree structures having rhetorical relations using a rhetorical structure theory (Marcu [0077]). A rhetorical structure theory is a type of discourse analysis.

"Determining at least one sentence of a text" and "determining sentential-level parse features for the at least one sentence", Marcu teaches a discourse structure for an input text segment (e.g., a clause, a sentence, a paragraph or a treatise) is determined by generating a set of one or more discourse parsing decision rules (Marcu [0010]). Marcu also teaches that examining each lexeme in the input text segment may include associating features with the lexeme based on surrounding context (Marcu [0016]).

"Determining a mapping between the sentential-level parse features and discourse-level parse features" and "determining a discourse-level parse tree of the at least one sentence based on the mapping", Marcu teaches learning cases generated automatically by a program that derives sequences of actions that map each of the large trees in our corpus into smaller trees (Marcu [0238]). Marcu also teaches various

types of tree structures to graphically represent the structure of a text segment (e.g., clause, sentence, paragraph or entire treatise). Two basic tree types include (1) the syntactic tree, which can be used to graphically represent the syntactic relations among components of a text segment, and (2) the rhetorical tree (equivalently, the rhetorical structure tree (RST) or the discourse tree), which can be used to graph the rhetorical relationships among components of a text segment (Marcu [0004]). A rhetorical structure theory is a type of discourse analysis.

Lines 5-9 have been analyzed and rejected with respect to the limitations of lines 27-32 and 1-4 of the current claim 24.

Claim 25 has been analyzed and rejected with respect to claim 24. Claim 25 teaches the same limitations taught within claim 24. A *feature* is construed to be an *attribute*.

Re claim 26, "the attributes are determined based on at least one of a part-of-speech tag, a probabilistic parser, a statistical parser, a finite state parser, a symbolic parser, a lexicon, and a WordNet relation", Marcu teaches the decoding of a string where it if first parsed into a large syntactic tree and then ranked, where lexical models for statistical parsing are used (Marcu [0176]).

Claim 27 has been analyzed and rejected with respect to claim 24. Claim 27 teaches the same limitations taught within claim 24. Marcu teaches that the rhetorical parsing algorithm described herein implements robust lexical, syntactic and semantic knowledge sources and the operations used by the parsing algorithm, along with the

shift operation, are mathematically sufficient to derive the discourse structure of any input text (Marcu [0021]).

Claim 29 has been analyzed and rejected with respect to claim 24. Claim 29 teaches the system of the method of claim 24.

Claim 30 has been analyzed and rejected with respect to claim 25. Claim 30 teaches the system of the method of claim 25.

Claim 31 has been analyzed and rejected with respect to claim 26. Claim 31 teaches the system of the method of claim 26.

Claim 32 has been analyzed and rejected with respect to claim 27. Claim 32 teaches the system of the method of claim 27.

Claim 38 has been analyzed and rejected with respect to claim 24. Claim 38 teaches the limitations set forth in the method of claim 24.

Claim 39 has been analyzed and rejected with respect to claim 25. Claim 39 teaches the limitations set forth in the method of claim 25.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966)**, that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows: **(See MPEP Ch. 2141)**

a. Determining the scope and contents of the prior art;
b. Ascertaining the differences between the prior art and the claims in issue;
c. Resolving the level of ordinary skill in the pertinent art; and
d. Evaluating evidence of secondary considerations for indicating obviousness or nonobviousness.

7. Claims 1-4, 11-14, 22-23, 28, 33, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marcu et al U.S. PGPUB 20020046018 (herein after Marcu) in view of Ramaswamy et al US 6188976 (herein after Ramaswamy.

Re claim 1, "A method of determining a hybrid text summary comprising the steps of", Marcu teaches discourse parsing having automatic derivation of discourse trees whose leaves are composed of sentences, (Marcu [0019] & [0021]). Marcu also teaches text summarization to rewrite longer text into a shorter version (Marcu [0022]). A hybrid text summary is construed as a portion of text containing various words, sentences, verbs, nouns, etc.

"Determining discourse constituents for a text", Marcu teaches text portions (constituents) for an input text segment becoming part of a tree, where the elimination of constituents from the tree reduces the parse tree based on rules (Marcu [0029]). Constituents are construed to be a portion of grammar forming a larger grammar, i.e. word from a sentence, sentence from a paragraph, etc.

"Determining a structural representation of discourse for the text", Marcu teaches the generation of a parse/discourse/syntactic tree, where a tree is a type of structural representation (Marcu [0029]).

"determining relevance scores for discourse constituents based on at least one non-structural measure of relevance", Marcu teaches a standard probabilistic context-free grammar score based on grammar rules (Marcu [0177]). Marcu also teaches possible solutions ranked using statistical model for nodes within a tree (Marcu [0222]), where statistical models are a form of non-structural measures. However Marcu fails to particularly teach of relevancy score. Ramaswamy teaches a relevance score calculator providing a relevance score of a linguistic unit (Ramaswamy col 4 line 25-54).

"Percolating relevance scores based on the structural representation of discourse", Marcu teaches text portions (constituents) for an input text segment becoming part of a tree, where the elimination of constituents from the tree reduces the parse tree based on rules (Marcu [0029]). Percolation is a form of filtration or parsing. By creating trees and eliminating nodes within the tree, Marcu demonstrates percolation.

"Determining a hybrid text summary based on discourse constituents with relevance scores compared to a threshold relevance score", Marcu teaches discourse representation (Marcu [0029]) and summarization (Marcu [0022]). However Marcu fails to teach relevancy scores compared to a threshold. Ramaswamy teaches a relevance score calculator providing a relevance score of a linguistic unit (Ramaswamy col 4 line 25-54) having the process of a threshold parameter generator providing a threshold for the relevance score to be compared to (Ramaswamy col 4 line 25-54).

Therefore, the combined teaching of Marcu and Ramaswamy as a whole would have rendered obvious the determination of hybrid text summary structural representations, non-structural representations, and relevancy score processing.

Re claim 2, "the structural representation of discourse is determined based on a theory of discourse analysis", the combined teaching discloses basic tree types being syntactic and rhetorical trees (rhetorical structure tree), used to graph the rhetorical relationships among text components as taught in the *Rhetorical structure theory* (Marcu [0004]). The rhetorical structure theory is a structural representation of discourse.

Re claim 3, "the theory of discourse analysis is at least one ot2 the Linguistic Discourse Model, the Unified Linguistic Discourse Model, Rhetorical Structure Theory, Discourse Structure Theory and Structured Discourse Representation Theory", the combined teaching discloses basic tree types being syntactic and rhetorical trees (rhetorical structure tree), used to graph the rhetorical relationships among text components as taught in the *Rhetorical structure theory* (Marcu [0004]). The rhetorical structure theory is a structural representation of discourse as previously recited in the analysis of claim 2.

Re claim 4, "non-structural measures of relevance are determined based on at least one of: statistics, keywords, knowledge bases", the combined teaching discloses a relevance score calculator providing a relevance score of a linguistic unit (Ramaswamy col 4 line 25-54). The combined teaching discloses possible solutions ranked using statistical model for nodes within a tree (Marcu [0222]), where statistical models are a

form of non-structural measures. The combined teaching also discloses the use of a relevant corpus as well as an external corpus (Ramaswamy Fig. 1).

Claim 11 has been analyzed and rejected with respect to claim 1. Claim 11 teaches the system of the method of claim 1.

Claim 12 has been analyzed and rejected with respect to claim 2. Claim 12 teaches the system of the method of claim 2.

Claim 13 has been analyzed and rejected with respect to claim 3. Claim 13 teaches the system of the method of claim 3.

Claim 14 has been analyzed and rejected with respect to claim 4. Claim 14 teaches the system of the method of claim 4.

Claim 22 has been analyzed and rejected with respect to claim 1. Claim 22 teaches an encoded carrier wave of the method of claim 1. The use of a computer to process data implies encoded carrier waves storing data for the execution of a program. However, the combined teaching of Marcu and Ramaswamy teaches syntactic information encoded as part of speech tags (Marcu [0118]).

Claim 23 has been analyzed and rejected with respect to claim 1. Claim 23 teaches a storage medium of the method of claim 1. The use of a computer to process data implies a necessary storage, in reference to tree structures, corpora, databases, etc. The combined teaching discloses linguistic units stored on a computer-readable medium (Ramaswamy col 2 line 50-62).

Claim 28 has been analyzed and rejected with respect to claims 1, 23, 24, and 27.

Claim 33 has been analyzed and rejected with respect to claims 11, 29, 30, and 32.

Claim 36 has been analyzed and rejected with respect to claim 1. Claim 36 teaches the system of the method of claim 1.

8. Claims 5-8, 15-18, 34-35, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marcu et al U.S. PGPUB 20020046018 (herein after Marcu) in view of Ramaswamy et al US 6188976 (herein after Ramaswamy and further in view of Wheeler et al US 6738759 (herein after Wheeler).

Re claim 5, "wherein percolating the relevance scores comprises the steps of...for each child discourse constituent node in the structural representation, assigning the relevance score of the child discourse constituent node to the parent discourse constituent node if the child discourse constituent node is more relevant", the combined teaching of Marcu and Ramaswamy discloses a relevance score calculator providing a relevance score of a linguistic unit (Ramaswamy col 4 line 25-54) having the process of a threshold parameter generator providing a threshold for the relevance score to be compared to (Ramaswamy col 4 line 25-54). The combined teaching also discloses a parse tree having N children and the assignment of probability to each node in the forest (Marcu [0031]).

However the combined teaching fails to teach the assignment of a relevance score of a child node to a parent node if the child node is more relevant. Wheeler teaches optimal similarity searching where a parent node score is computed using the

data item score of its child (Wheeler col 23 line 39-51). Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious assigning a relevance score of a child node to the parent node if the child node is more relevant.

"For any subordinating nodes, assigning the relevance scores of the subordinated discourse constituent to the subordinating discourse constituent if the subordinated discourse constituent is more relevant", the combined teaching of Marcu and Ramaswamy fails to teach the assignment of a relevance score of a subordinated constituent to a subordinating constituent if the subordinated constituent is more relevant. A *subordinated* constituent is construed as the component/identifier forming a relationship to the child node in a tree structure, where as a *subordinating* constituent is construed as the component/identifier forming a relationship to the parent node in a tree structure. Wheeler teaches optimal similarity searching where a parent node score is computed using the data item score of its child (Wheeler col 23 line 39-51). Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious assigning a relevance score of a subordinated constituent to the subordinating constituent if the subordinated constituent is more relevant.

"For any coordination nodes, assigning the relevance score of the most relevant child to other child discourse constituent nodes", the combined teaching of Marcu and Ramaswamy discloses corpora where one sub corpus contains the most relevant linguistic units and another sub corpus contains the least relevant (Ramaswamy Fig. 5 & col 6 line 8-21). However the combined teaching fails to disclose assigning the most

relevant child core to other child nodes. Wheeler teaches the use of leaf node scores for all children of the parent (Wheeler col 4 line 35-51) where the leaf nodes contain the data items that are to be similarity searched and assigned a similarity search score (Wheeler col 7 line 20-25). A coordination node is construed as a nodal relationship such as a parent to a child or vice versa, where a coordinated node is construed as the child node, which is linked to the parent node and is therefore rendered to be coordinated. Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious assigning the relevance score of the most relevant child to other child nodes.

Re claim 6, Lines 6-11 have been analyzed and rejected with respect to lines 27-32 of claim 5.

The combined teaching of Marcu, Ramaswamy, and Wheeler discloses a relevance score calculator providing a relevance score of a linguistic unit (Ramaswamy col 4 line 25-54) having the process of a threshold parameter generator providing a threshold for the relevance score to be compared to (Ramaswamy col 4 line 25-54). The combined teaching also discloses a parse tree having N children and the assignment of probability to each node in the forest (Marcu [0031]) as well as corpora where one sub corpus contains the most relevant linguistic units and another sub corpus contains the least relevant (Ramaswamy Fig. 5 & col 6 line 8-21). A coordination node is construed as a nodal relationship such as a parent to a child or vice versa, where a coordinated node is construed as the child node, which is linked to the parent node and is therefore rendered to be coordinated.

Lines 12-14, the combined teaching discloses child nodes as part of a parent node, where the child nodes can have multiple preceding nodes (Wheeler Fig. 12F) and a parent node can have multiple children with multiple preceding nodes within each parent child relationship (Wheeler Fig. 13). Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious assigning relevance scores of a coordinated node to a preceding less relevant node.

Lines 15-19, the combined teaching discloses an interior node, where a node has a parent node and the interior node is itself a parent node having at least one child node selected from the group consisting of interior nodes and leaf nodes (Wheeler col 2 line 37-46). An interior node is construed to be a node that is a child node but not a coordinated node nor a subordinated node. Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious assigning a relevance sore of the parent node to the child node if the parent node is more relevant, following conditions of not being a coordinated node nor a subordinated node.

Lines 20-24, the combined teaching discloses child nodes as part of a parent node, where the child nodes can have multiple preceding nodes (Wheeler Fig. 12F) and a parent node can have multiple children with multiple preceding nodes within each parent child relationship (Wheeler Fig. 13). Child nodes adjacent to one another are construed to be sibling nodes dependent on the parent node. Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious assigning the relevance score of the parent node to the coordinated node if the coordinated node and all it's siblings are less relevant.

Lines 24-27, the combined teaching discloses child nodes as part of a parent node, where the child nodes can have multiple preceding nodes (Wheeler Fig. 12F) and a parent node can have multiple children with multiple preceding nodes within each parent child relationship (Wheeler Fig. 13). As recited in the analysis for claim 5, a *subordinated* constituent is construed as the component/identifier forming a relationship to the child node in a tree structure, where as a *subordinating* constituent is construed as the component/identifier forming a relationship to the parent node in a tree structure. Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious assigning the relevance score of the subordinated node to the subordinating constituent if the subordinated constituent and all it's siblings are less relevant.

"For each node, repeating these steps, until no node can be found whose relevance score is changed to the relevance score of another node", the combined teaching discloses that if there are more leaf nodes in the query to process 330, the process is repeated for all leaf nodes (steps 327 through 329). If there are no more leaf nodes in the query to process 330, parent scores are computed using the parent scoring algorithm 331 and the process is repeated 332 until a single overall parent score is computed and processing ends 333 (Wheeler col 22 line 14-37). Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious repeating the percolation steps until no node can be found whose score has been changed to another nodes score.

Claim 7 has been analyzed and rejected with respect to claim 5. The combined teaching discloses that a parent node can have multiple children with multiple preceding nodes within each parent child relationship (Wheeler Fig. 13). The combined teaching also discloses he invention is a computer-implemented similarity search system and method that allows for efficiently searching very large source databases, where databases are translated into a hierarchical database, document or set of documents of root, interior and leaf nodes (Wheeler col 1 line 7-24).

Re claim 8, lines 1-7 have been analyzed and rejected with respect to claim 1. Claim 1 teaches the same set of limitations as taught by lines 1-7 of claim 8.

"For each discourse constituent leaf node, determining the number of subordinated edges plus one", the combined teaching discloses all the children scores are annotated and saved and may be viewed at a later time (Wheeler col 22 line 23-37). An edge is construed as the branch extending from a parent or child to another node, where an edge count would be proportional to a node count. By saving and annotating all scores, a total number of edges are found in the computation of the score. Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious the determining of a score based on the number of edges of a child node.

"Determining a score based on the inverse of the number of subordinated edges +1", the combined teaching discloses a hierarchical database, document or set of documents of root, interior and leaf nodes (Wheeler col 1 line 7-24) as well as an associating a probability with each individual step to build a discourse tree of a text

dependent on previous steps (Marcu [0165]). Examiner takes Official Notice that it is well known to use inverse operations during probability calculations. Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious the determining of a score based on the inverse of the number of edges of a child node.

"Determining an adjusted relevance score based on the score and the subordination level", The combined teaching also discloses a relevance score calculator providing a relevance score of a linguistic unit (Ramaswamy col 4 line 25-54) having the process of a threshold parameter generator providing a threshold for the relevance score to be compared to (Ramaswamy col 4 line 25-54). The score of a node is construed to be dependent on the location of the node, as different node locations house different scores that are adjusted depending on conditions of preceding child/parent nodes. Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious adjusted relevance scores based on a score and subordination level.

"Determining a hybrid text summary based on discourse constituents with relevance scores compared to a threshold relevance score", the combined teaching discloses text portions (constituents) for an input text segment becoming part of a tree, where the elimination of constituents from the tree reduces the parse tree based on rules (Marcu [0029]). The combined teaching also discloses a relevance score calculator providing a relevance score of a linguistic unit (Ramaswamy col 4 line 25-54) having the process of a threshold parameter generator providing a threshold for the

relevance score to be compared to (Ramaswamy col 4 line 25-54). Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious the determination of a hybrid text summary based on a relevance score and a relevance threshold comparison.

Pertaining to lines 12-21:

The combined teaching of Marcu, Ramaswamy, and Wheeler discloses a relevance score calculator providing a relevance score of a linguistic unit (Ramaswamy col 4 line 25-54) having the process of a threshold parameter generator providing a threshold for the relevance score to be compared to (Ramaswamy col 4 line 25-54). The combined teaching also discloses a parse tree having N children and the assignment of probability to each node in the forest (Marcu [0031]) as well as corpora where one sub corpus contains the most relevant linguistic units and another sub corpus contains the least relevant (Ramaswamy Fig. 5 & col 6 line 8-21). A coordination node is construed as a nodal relationship such as a parent to a child or vice versa, where a coordinated node is construed as the child node, which is linked to the parent node and is therefore rendered to be coordinated.

Lines 12-14, the combined teaching discloses optimal similarity searching where a parent node score is computed using the data item score of its child (Wheeler col 23 line 39-51). A *subordinated* constituent is construed as the component/identifier forming a relationship to the child node in a tree structure, where as a *subordinating* constituent is construed as the component/identifier forming a relationship to the parent node in a tree structure. *The score* is construed to be pertaining to a child node. Therefore, the

combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious assigning the score of a child node to the parent node if the score is less relevant.

Lines 15-18 of claim 8 have been analyzed and rejected with respect to line 12-14 of claim 8. The use of subordinated and subordinating follow the analysis set forth for lines 15-18.

Lines 19-21 of claim 8 have been analyzed and rejected with respect to line 12-14 of claim 8. The use of coordination is construed as a nodal relationship such as a parent to a child or vice versa, where a coordinated node is construed as the child node, which is linked to the parent node and is therefore rendered to be coordinated. Also, the use of *any* allows the limitation of lines 12-14 to be resemble lines 19-21. Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious the assigning of any relevance scores to each child node if it is lower.

Re claim 34, "determining a combined relevance score based on the relevance scores and non-structural relevance scores and percolating the combined relevance score", the combined teaching of Marcu and Ramaswamy discloses text portions (constituents) for an input text segment becoming part of a tree, where the elimination of constituents from the tree reduces the parse tree based on rules (Marcu [0029]). Percolation is a form of filtration or parsing. By creating trees and eliminating nodes within the tree, the combined teaching demonstrates percolation. The combined teaching also discloses possible solutions ranked using statistical model for nodes

within a tree (Marcu [0222]), where statistical models are a form of non-structural measures. The combined teaching of Marcu and Ramaswamy also discloses a relevance score calculator providing a relevance score of a linguistic unit (Ramaswamy col 4 line 25-54). However the combined teaching fails to disclose a combined relevance score based relevance scores and non-structural scores. Wheeler teaches a parent node score is computed by combining the data item scores for all its child nodes (Wheeler col 2 line 46-55). Wheeler also teaches the parent score computing algorithm takes the score determined for each category and combines or rolls up these scores into each parent category to arrive at an overall score for the highest level parent category (Wheeler col 18 line 61-67 & Fig. 21H). Therefore, the combined teaching of Marcu, Ramaswamy, and Wheeler as a whole would have rendered obvious determining combined relevance scores (and percolating them) based on relevance scores and non-structural relevance scores.

Claim 15 has been analyzed and rejected with respect to claim 5. Claim 15 teaches the system of the method of claim 5.

Claim 16 has been analyzed and rejected with respect to claim 6. Claim 16 teaches the system of the method of claim 6.

Claim 17 has been analyzed and rejected with respect to claim 7. Claim 17 teaches the system of the method of claim 7.

Claim 18 has been analyzed and rejected with respect to claim 8. Claim 18 teaches the system of the method of claim 8.

Claim 35 has been analyzed and rejected with respect to claim 34. Claim 35 teaches the system of the method of claim 34.

Claim 37 has been analyzed and rejected with respect to claim 8. Claim 37 teaches the system of the method of claim 8.

9. **Claims 9-10 and 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marcu et al U.S. PGPUB 20020046018 (herein after Marcu) in view of Ramaswamy et al US 6188976 (herein after Ramaswamy and further in view of Nakao US 6205456 B1.**

Re claim 9, the combined teaching of Marcu and Ramaswamy disclose the generation of a parse/discourse/syntactic tree, where a tree is a type of structural representation (Marcu [0029]). The combined teaching also discloses text portions (constituents) for an input text segment becoming part of a tree, where the elimination of constituents from the tree reduces the parse tree based on rules (Marcu [0029]). The combined teaching also discloses

"Determining every leaf discourse constituent containing an anaphor", the combined teaching fails to teach the determination of anaphoric expressions a tree. Nakao teaches the determination of whether or not an anaphoric expression exists in a phrase (Nakao col 24 line 46-57). A leaf is construed as a node within a tree structure, particularly a child node.

"For each anaphor, determine any unique antecedent referents for the anaphor; substituting the unique antecedent referent into the leaf discourse constituent for the

anaphor", the combined teaching of Marcu and Ramaswamy fail to teach the determination of a unique antecedent for an anaphor. Nakao teaches that for an anaphoric expression, its antecedent is searched for and the anaphoric expression is replaced with the antecedent or a portion containing the antecedent is included in a summary so that the summary can be easily understood (Nakao col 4 line 12-29). The use of *unique* in reference to a referent is construed as a special, important, or key element at a node, which is implied in order to form an accurate tree structure representation of text.

"Removing the discourse constituent containing the unique antecedent referent from the set of the discourse constituents with relevance scores more relevant that the threshold relevance score", the combined teaching of Marcu and Ramaswamy disclose a relevance score calculator providing a relevance score of a linguistic unit (Ramaswamy col 4 line 25-54) having the process of a threshold parameter generator providing a threshold for the relevance score to be compared to (Ramaswamy col 4 line 25-54).

Therefore, the combined teaching of Marcu, Ramaswamy, and Nakao as a whole would have rendered obvious the determination and substitution for an anaphor replaced by a unique antecedent referent relative to a threshold relevance score.

Re claim 10, "determining important discourse constituent nodes", the combined teaching of Marcu and Ramaswamy discloses a parse tree having N children and the assignment of probability to each node in the forest (Marcu [0031]). Any node within a

tree structure is construed as a as special, important, or key element at a node, which is implied in order to form an accurate tree structure representation of text.

"Determining unresolved anaphors" and "determining potential resolving discourse constituents containing potential antecedent referent with potential to resolve anaphors", Nakao teaches that for an anaphoric expression, its antecedent is searched for and the anaphoric expression is replaced with the antecedent or a portion containing the antecedent is included in a summary so that the summary can be easily understood (Nakao col 4 line 12-29).

"Percolating relevance score of important discourse constituents through a reduced span of potential resolving discourse constituents" and "determining a reduced span of discourse constituents based on relevance score", the combined teaching discloses text portions (constituents) for an input text segment becoming part of a tree, where the elimination of constituents from the tree reduces the parse tree based on rules (Marcu [0029]). Percolation is a form of filtration or parsing. By creating trees and eliminating nodes within the tree, the combined teaching demonstrates percolation.

Therefore, the combined teaching of Marcu, Ramaswamy, and Nakao as a whole would have rendered obvious the percolation of relevance scores by determining anaphors with antecedent referents to reduce a span based on a relevance score.

Claim 19 has been analyzed and rejected with respect to claim 9. Claim 19 teaches the apparatus of the method of claim 9.

Claim 20 has been analyzed and rejected with respect to claim 9. Claim 20 teaches the apparatus of the method of claim 9.

Claim 21 has been analyzed and rejected with respect to claim 10. Claim 21 teaches the apparatus of the method of claim 10.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Colucci whose telephone number is (571)-270-1847. The examiner can normally be reached on 7:30 am - 5:00 pm, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)-272-7332. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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